

# **Balancing the Effects of Reduced Diversions with the Board's Public Trust Obligations**

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# Presentation Topics

1. The Board Must Protect Public Trust Fishery Resources “to the Extent Feasible”
2. The Board’s Balancing of Beneficial Uses Requires Consideration of Alternative Water Supplies and Economic Benefits of Reduced Diversions
3. The SED Underestimates Aquatic Resources Effects and Overestimates Agricultural Effects of Reduced Diversions

# SWRCB's Public Trust Obligations

- Board must protect Public Trust fishery resources “to the extent feasible”
- Board must consider improved efficiency and alternative water supplies in determining what Public Trust protections are feasible
- CESA and Salmon Doubling are Legislative Expressions of the Public Trust

# Balancing of Beneficial Uses

- Balancing must consider economic and social benefits of reduced diversions:
  - Sport and Commercial fisheries
  - Nonmarket economic valuation
  - Improved downstream water quality
- Balancing must consider improved water use efficiency and other water supply alternatives
- SED does not include this information

# SED Underestimates Impacts to Aquatic Resources

- SED assumes no impacts to aquatic resources under baseline conditions, despite continued decline of salmon and other aquatic resources under baseline conditions
- SED does not assess impacts against the existing salmon doubling water quality objective

# Draft SED's Conclusions Regarding Agricultural Effects

- SED assumes significant impacts to agriculture under baseline conditions
- Majority of impacts occur in drought and dry years
- Improved water use efficiency can reduce impacts

# Improved Water Use Efficiency Can Reduce Agricultural Impacts

- Chapter 11 acknowledges that improved irrigation efficiency can be used to “replace or augment some of the lost surface water supply” and to reduce groundwater pumping.
- However, SED does not quantify or estimate water savings from improved efficiency.

# Improved Water Use Efficiency Can Reduce Agricultural Impacts

- The SED identifies 3 potential water use efficiency tools:
  - increased use of irrigation management services to determine how much water is needed and when to apply it;
  - conversion to more efficient irrigation systems; and
  - increased delivery flexibility.

# Existing Irrigation Methods

**Table 11-6. Irrigation Method Types in Merced, San Joaquin, and Stanislaus Counties**

County	Surface	Sprinkler	Drip and Micro	Other
Madera	33.2%	3.8%	61.6%	1.5%
Merced	57.2%	6.2%	34.0%	2.7%
San Joaquin	36.0%	14.2%	36.6%	13.2%
Stanislaus	44.1%	9.5%	44.8%	1.6%

Source: DWR 2010

# Pacific Institute Report on Improved Agricultural Water Use Efficiency

- Examined three scenarios
  - Improved Irrigation Efficiency
  - Regulated Deficit Irrigation
  - Use of Irrigation Management Systems (CIMIS)
- Results of scenarios are not additive
- Report considers economic impacts and potential water savings

# Pacific Institute Report on Improved Agricultural Water Use Efficiency

- Regulated Deficit Irrigation:
  - Nearly 100,000 AF of water savings on average
- Improved Irrigation Efficiency:
  - 60,000 to 173,000 AF of water savings
- Expanded Use of CIMIS (irrigation scheduling)
  - Potential water savings of up to 166,000 AF, but more uncertainty of this estimate

# Agricultural Effects of Reduced Diversions Are Likely Overestimated

- The SED explicitly recognizes that “Input-output analysis approach employed by IMPLAN **usually overestimates** indirect job and income losses.”

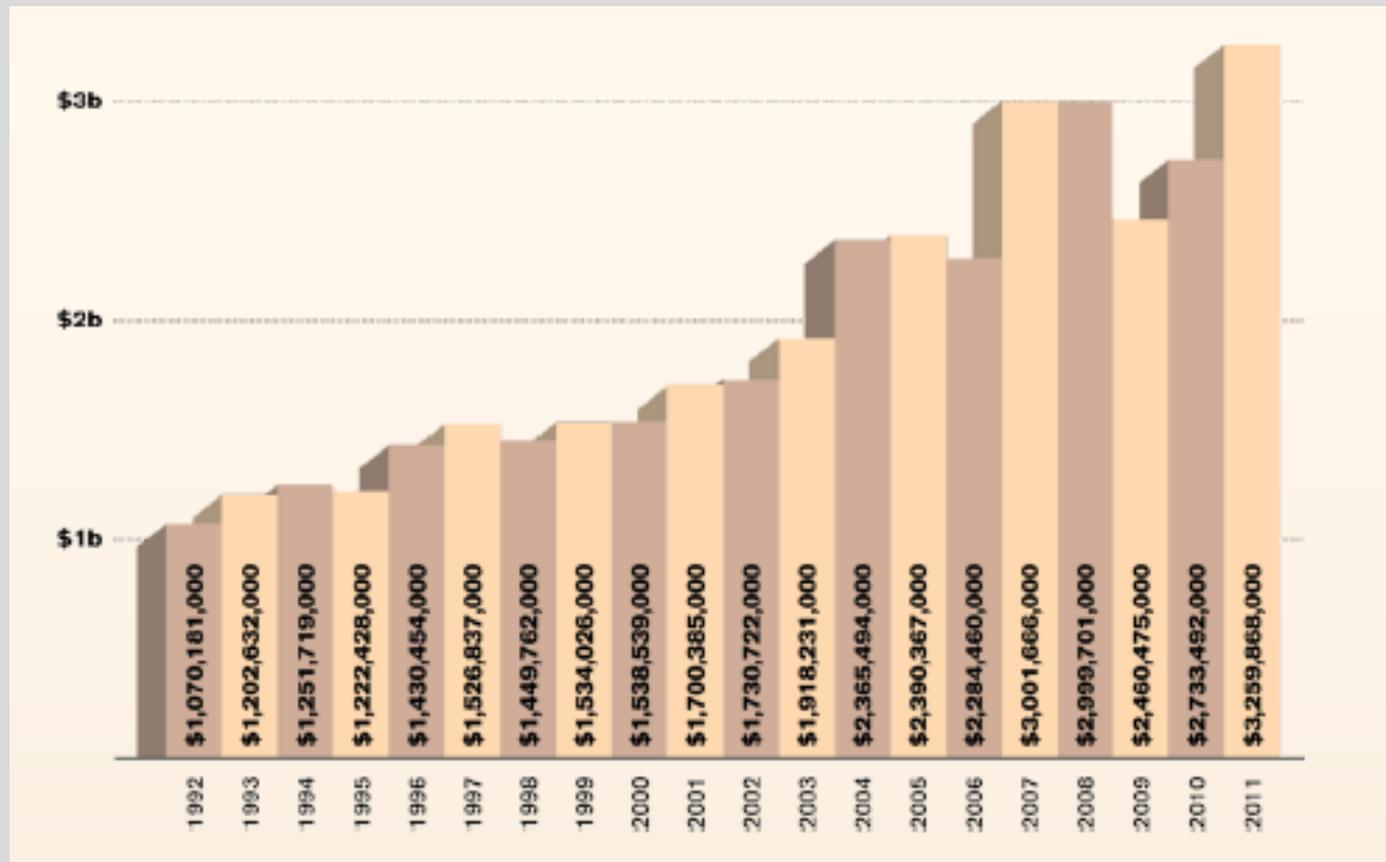
# Draft SED Conclusions Regarding Agricultural Effects

Table ES-6. Summary of Average Annual Effects of the LSJR Alternatives, Relative to Baseline

Impact Category	LSJR Alternative 2		LSJR Alternative 3		LSJR Alternative 4	
	Change	% Change	Change	% Change	Change	% Change
<b>Agricultural Production</b>						
Irrigated acreage	+12,280	+1.0	-66,500	-7.0	-155,720	-16.0
Crop revenues (\$M)	+\$9	+0.3	-\$40	-1.5	-\$124	-4.5

Impact Category	LSJR Alternative 2		LSJR Alternative 3		LSJR Alternative 4	
	Change	% Change	Change	% Change	Change	% Change
<b>Regional Economic Effects</b>						
<b>Agriculture-related effects</b>						
Total sector output (\$M)	+\$15	+0.3	-\$69	-1.5	-\$210	-4.5
Total sector jobs	+102	+0.3	-465	-1.5	-1,432	-4.5

# Agricultural Revenues Have Dramatically Increased in Recent Years



Source: Merced County 2011 Report on Agriculture

# Marginal Revenue Loss of Reduced Diversions

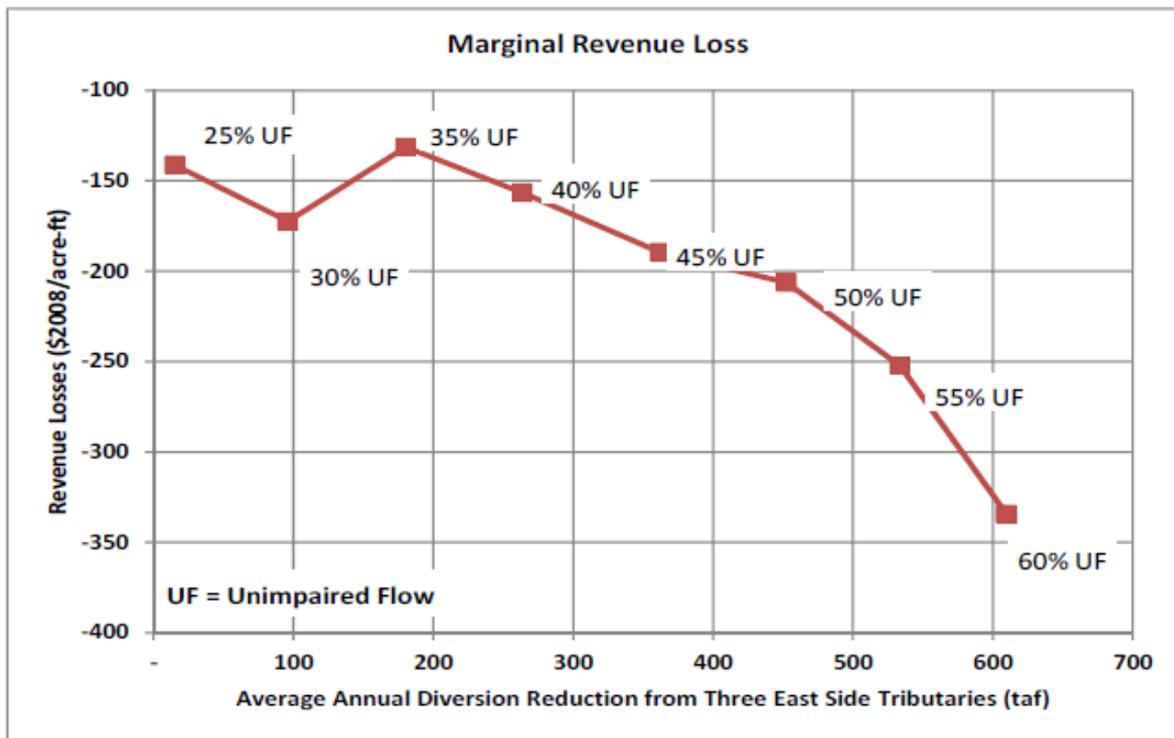


Figure G-12. Marginal Revenue Loss Per Acre-Foot of Additional Diversion Reduction for LSJR Alternatives Ranging from 25% to 60% of Unimpaired Flow

# Necessary Refinements to Agricultural Effects Analysis

- SED should quantify improvements in agricultural water use efficiency that minimize impacts, per Pacific Institute report
- SED should be internally consistent regarding groundwater pumping

# The SED Should be Internally Consistent RE: Groundwater Pumping

- For water supply and agricultural effects analysis, the SED assumes no increased groundwater pumping.
- For groundwater effects analysis, the SED assumes increases in groundwater pumping that entirely offset reductions in surface water diversions.
- SED needs to be internally consistent.

# Conclusion

- SED does not demonstrate that Board is protecting Public Trust fisheries to the extent feasible
- SED does not demonstrate that 35% UIF will achieve the narrative objectives
- SED does not appropriately balance beneficial uses
- SED does not accurately assess potential impacts